

Amendments to and Listing of the Claims:

Please amend the claims as follows:

Please cancel claim 2, amend claims 1, 25, 31-33, 35 and 37-44 as shown and add new claim 45 as follows:

1. (Currently amended) An evacuation apparatus for enabling a person within a prescribed weight range to descend from an origin at a predetermined height in a multistory building to a lower supporting surface at and to attain a sufficiently slow descent speed of less than four feet per second to land injury-free, the apparatus comprising:
a housing harness securable to the person;
a ~~harness for securely affixing the housing to the person~~ housing affixed to the harness;
a cable within the housing, of predetermined length sufficient to reach from the origin to the lower supporting surface, the cable having a free end which includes a securing member for attaching the free end to a fixed anchorage proximate the origin; and
~~an~~ descent-slowng energy-dissipating mechanism within the housing, driven by the payout of the cable from the housing as the person descends, which enables the person to attain automatically within his descent a descent speed of less than four feet per second without the person's control, determined by the intersection having the characteristic that the slope of the graph of the curve that describes the rate of energy dissipated as a function of the descent speed exceeds the slope of and the graph of the line that describes the rate of potential energy released by the total descending weight as a function of the descent speed at their point of intersection, and the characteristic that the intersection occurs at the sufficiently slow descent speed without the person's control, where the slope of the graph of the rate of energy dissipated curve exceeds the slope of the graph of the rate of potential energy released line.
2. (Cancelled)
3. (Original) The apparatus as recited in claim 1 wherein the apparatus includes a rotatable member within the housing and the payout of the cable from the housing causes the rotatable member to rotate.
4. (Original) The apparatus as recited in claim 3 wherein the rotatable member is a spool that houses the cable.

5. (Original) The apparatus as recited in claim 3 wherein the energy dissipating mechanism is driven by the rotation of the rotatable member through a speed-increaser.
6. (Original) The apparatus as recited in claim 5 wherein the speed-increaser is comprised of an arrangement of gears.
7. (Original) The apparatus as recited in claim 5 wherein the speed-increaser is comprised of a belt and pulley arrangement.
8. (Original) The apparatus as recited in claim 1 wherein the energy dissipating mechanism comprises an air resistance fan with a plurality of vanes.
9. (Original) The apparatus as recited in claim 8 wherein the vanes of the fan are substantially semi-cylindrical in shape.
10. (Original) The apparatus as recited in claim 1 wherein the energy dissipating mechanism comprises a generator and resistance.
11. (Original) The apparatus as recited in claim 10 wherein the resistance comprises a plurality of resistors which are switch-selectable prior to the descent.
12. (Original) The apparatus as recited in claim 1 wherein the energy dissipating mechanism comprises an eddy current brake.
13. (Original) The apparatus as recited in claim 12 wherein the eddy current brake includes a stator and a rotor with a gap therebetween wherein the size of the gap between the stator and the rotor is adjustable prior to the descent.
14. (Original) The apparatus as recited in claim 4 further comprising a cable de-slacking mechanism within the housing.
15. (Original) The apparatus as recited in claim 14 wherein the cable de-slacking mechanism removes slack from the cable prior to the descent.
16. (Original) The apparatus as recited in claim 14 wherein the cable de-slacking mechanism removes slack from the cable prior to subsequent descents from other supporting surfaces located below the predetermined height.
17. (Original) The apparatus as recited in claim 14 wherein the cable de-slacking mechanism comprises a substantially constant-torque spring that rewinds the spool that houses the cable.
18. (Original) The apparatus as recited in claim 1 wherein the apparatus further comprises a cable force limiting mechanism to protect the cable from transient overloads.

19. (Original) The apparatus as recited in claim 3 wherein the apparatus further comprises a cable force limiting mechanism to protect the cable from transient overloads.
20. (Original) The apparatus as recited in claim 18 wherein the cable force limiting mechanism is at least one energy-absorbing web in-line with the cable.
21. (Original) The apparatus as recited in claim 19 wherein the cable force limiting mechanism is a torque limiting mechanism applied to the rotatable member.
22. (Original) The apparatus as recited in claim 18 wherein the cable force limiting mechanism is the reduced spring-constant of the played-out cable.
23. (Original) The apparatus as recited in claim 21 further comprising a thermal clutch that automatically decouples the energy dissipating mechanism when the ambient temperature goes above a preset temperature.
24. (Original) The apparatus as recited in claim 23 wherein the thermal clutch recouples the energy dissipating mechanism when the ambient temperature goes below the preset temperature.
25. (Currently amended) The apparatus as recited in claim 1 wherein the harness includes at least one of:
straps, ropes, tethers, clips, buckles, snaps, ties, rings, ~~Velcro~~ hook and loop fasteners, tensioners, bungees, bands, loops, and belts, that accommodate to the size of the person.
26. (Original) The apparatus as recited in claim 1 wherein the cable is capable of supporting at least two and a half times the maximum descending weight.
27. (Original) The apparatus as recited in claim 1 wherein the cable is a steel wire-rope.
28. (Original) The apparatus as recited in claim 1 wherein the cable is a high-strength polymer cable.
29. (Original) The apparatus as recited in claim 1 wherein the cable is made up of a composite of materials.
30. (Original) The apparatus as recited in claim 1 wherein the securing member is a carabiner.
31. (Currently amended) The apparatus as recited in claim ~~30~~ 1 wherein the fixed anchorage can accommodate a plurality of ~~carabiners~~ securing members.
32. (Currently amended) The apparatus as recited in claim 1 wherein the fixed anchorage is adapted to be located proximate an egress opening of the building.
33. (Currently amended) The apparatus as recited in claim 1 wherein the fixed anchorage is adapted to be secured to a structural member of the building.

34. (Original) The apparatus as recited in claim 1 further including a protective helmet worn by the person.

35. (Currently amended) The apparatus as recited in claim 1 further including an air filtration system which may or may not be within or attached to the housing.

36. (Original) The apparatus as recited in claim 35 wherein the air filtration system filters out smoke and other combustion products for at least 30 minutes.

37. (Currently amended) A method for enabling a person within a prescribed weight range to descend automatically from an origin at a predetermined height in a multistory building to a lower supporting surface and to attain a descent speed of less than four feet per second at a sufficiently slow speed to land injury-free, using an evacuation apparatus comprising a housing that contains a cable that is long enough to reach from the origin to the lower supporting surface and ~~ana descent-slowng~~ energy dissipating mechanism, the cable having a free end with a securing member for attaching to a fixed anchorage proximate the origin, and a harness affixed to the housing, the method comprising the steps of:

using the harness to securely affixing the housing to the person;

attaching the free end of ~~athe~~ cable to the fixed anchorage;

exiting the building at the origin of the descent; and

descending to the lower supporting surface ~~at the sufficiently slow descent speed while the descent-slowng energy dissipating mechanism enables the person to attain automatically within his descent a descent speed of less than four feet per second.~~

38. (Currently amended) An evacuation apparatus for enabling a person within a prescribed weight range to descend from an origin at a predetermined height in a multistory building to a lower supporting surface ~~at~~ and to attain a sufficiently slow descent speed of less than four feet per second to land injury-free, the apparatus comprising:

a housing ~~means for~~ containing a cable ~~and a speed slowing means;~~

a harness affixed to the housing ~~means for~~ securely affixing the housing to the person;

a cable of predetermined length sufficient to reach from the origin to the lower supporting surface, the cable having a free end which includes a ~~means-member~~ for securing the free end to a fixed anchorage proximate the origin; and

~~an~~ speed-slowng energy-dissipating means within the housing and driven by the payout of the cable from the housing ~~means-as~~ the person descends, the energy-dissipating means enabling the

person to attain automatically within his descent a descent speed of less than four feet per second without the person's control, determined by the intersection of ~~having the characteristic that the slope of the graph of the curve that describes~~ the rate of energy dissipated as a function of the descent speed ~~exceeds the slope of~~ and the graph of the line that describes the rate of potential energy released ~~by the total descending weight~~ as a function of the descent speed at their point of intersection, and the characteristic that the intersection occurs at the sufficiently slow descent speed without the person's control, where the slope of the graph of the rate of energy dissipated curve exceeds the slope of the graph of the rate of potential energy released line.

39. (Currently amended) A mass evacuation system for rescuing a plurality of persons from origins at predetermined heights in a multistory building to ~~aat least one~~ lower supporting surface, the system including a plurality of evacuation apparatuses, each apparatus enabling a person within a prescribed weight range to descend at a sufficiently slow descent speed to land without injury to ~~themselves~~himself or other persons using the system, with at least one person using the system attaining a speed of less than four feet per second, each rescueevacuation apparatus comprising:

a housing harness securable to thea person;

a harness for securely affixing the housing to the person housing affixed to the harness;

a cable within the housing, of predetermined length sufficient to reach from the origin to the lower supporting surface, the cable having a free end which includes a securing member for attaching the free end to a fixed anchorage proximate the origin; and

an descent-slowng energy-dissipating mechanism within the housing, driven by the payout of the cable from the housing as the person descends, which enables the person to attain

automatically a descent speed of less than four feet per second without the person's control

~~having the characteristic that~~ determined by the intersection of the slope of graph of the curve

that describes the rate of energy dissipated as a function of descent speed exceeds the slope of

and the graph of the line that describes the rate of potential energy released by the total

descending weight as a function of the descent speed at their point of intersection, and the

characteristic that the intersection occurs at the sufficiently slow descent speed without the

person's control, where the slope of the graph of the rate of energy dissipated curve exceeds the

slope of the graph of the rate of potential energy released line.

40. (Currently amended) An evacuation apparatus for enabling a person to descend from an origin at a predetermined height in a multistory building to a lower supporting surface, the apparatus including a housing, a cable within the housing having a free end for attachment to a fixed anchorage proximate to the origin, a descent-slowing energy dissipating mechanism within the housing driven by the payout of the cable as the person descends, and a harness affixed to the housing and securable to the person, in combination with a cable-retracting mechanism within the housing to eliminate any slack in the cable, thereby reducing free-falls during initial and possible subsequent descents.

41. (Currently amended) An evacuation apparatus for enabling a person to descend from an origin at a predetermined height in a multistory building to a lower supporting surface, the apparatus including a housing, a cable within the housing having a free end for attachment to a fixed anchorage proximate to the origin , a descent-slowing energy dissipating mechanism within the housing driven by the payout of the cable as the person descends, and a harness affixed to the housing and securable to the person, in combination with a mechanism to protect the cable during the descent from transient overloads beyond its capability, the mechanism comprising at least one of: an in-line energy-absorbing web in-line with the cable at the origin, a torque-limiting mechanism within the housing, and a the reduced effective spring constant resulting from the increased length of the played-out cable.

42. (Currently amended) An evacuation apparatus for enabling a person to descend from an origin at a predetermined height in a multistory building to a lower supporting surface, including a housing, a cable within the housing having a free end for attachment to a fixed anchorage proximate to the origin, a descent-slowing energy dissipating mechanism within the housing driven by the payout of the cable as the person descends, and a harness affixed to the housing and securable to the person, in combination with an air filtration system which may or may not be within or attached to the housing, the air filtration system being capable of filtering out smoke and other combustion products to enable the person to breathe safe air at least during the period before exiting the building.

43. (Currently amended) An evacuation apparatus for enabling a person to descend from an origin at a predetermined height in a multistory building to a lower supporting surface, including a housing, a cable within the housing having a free end for attachment to a fixed anchorage proximate to the origin, a descent-slowing energy dissipating mechanism within the housing

driven by the payout of the cable as the person descends, and a harness affixed to the housing and securable to the person, in combination with a device to protect against heat exposure injury, the device comprising at least one of: a deployable heat-deflecting shield, a heat-deflecting body suit, and a thermal mechanism within the housing to increase the descent rate of the apparatus through hot zones.

44. (Currently amended) An evacuation apparatus for enabling a person to descend from an origin at a predetermined height in a multistory building to a lower supporting surface, including a housing, a cable within the housing having a free end for attachment to a fixed anchorage proximate the origin, a descent-slowing energy dissipating mechanism within the housing driven by the payout of the cable as the person descends, and a harness affixed to the housing and securable to the person, in combination with a full-head protection helmet protecting the person against falling debris and incidental contact with obstacles during the descent.

45. (New) The apparatus as recited in claim 1, wherein the person is a child and further including a protective cocoon-like enclosure for receiving the child, and wherein the harness is at least one of a belt and a latching mechanism that secures the housing to the enclosure.